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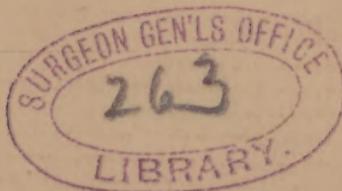
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# TINNITUS AURIUM AND VERTIGO

AS PROMINENT

## SYMPTOMS OF LITHÆMIA.

BY GEORGE H. LYMAN, M.D.



*Reprinted from the Journal of the American Medical Association,  
December 22, 1883.*

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{Read before the Section for Clinical Medicine, Pathology and Hygiene of  
the Suffolk District Medical Society, November 14, 1883.]

There is, perhaps, no class of patients coming under a physician's observation, which are more troublesome than those cases of gastric and hepatic derangement due to the lithic acid diathesis, so-called. The functional disturbances are so associated with nervous phenomena, as to render the sufferer impatient and intractable, skeptical of your assertion that he has no serious organic disease, and ready to try every nostrum and accept every diagnosis but the true one from the numerous professional and lay friends whose sympathy he seeks.

Although lithæmia, lithuria, lithiasis, etc., have now become tolerably familiar terms to the profession, the whole subject still remains more or less obscure, especially the subjective semiology and the relative importance of the renal and hepatic pathology. The true nature of the affection often escapes recognition by the medical adviser until some case presents itself which cannot be ignored, when he is forced to closer inquiry into the antecedents and a more rigid analysis of the symptoms. He then discovers that he has to deal with something more than a mere gastric derangement, indigestion, dyspepsia, or what not, vague terms with which he has temporarily satisfied his own conscience and his patient's importunities; his blue pill and pepsin, his alkalies and sedatives, either separately or in some incongruous combination, have generally been a lamentable failure. In mild cases,

to be sure, the mark is occasionally hit by some snap shot ; but when the patient, superadded to his other grievances, has an incessant tinnitus, he loses faith in the stomach doctrine, or if his memory begins to suffer, or he has occasional attacks of vertigo, so sudden and severe as to make him unwilling to trust himself alone in the street, what wonder that he should seek other and special skill in brain, heart, eye or ear, to the great discredit of the general practitioner ; for though he may get no more relief by the change, his subjective symptoms get more direct attention, and he, at any rate, is for the time being satisfied that merely local treatment is exactly what he needs.

While the first of the following cases was under observation, the admirable article of Dr. DaCosta appeared in the October number of the *American Journal of Medical Sciences* for 1881, in which these nervous phenomena especially are brought more prominently forward than in the famous Croonian Lectures of Dr. Murchison, which have done so much, by stimulating inquiry, to develop our knowledge of these lithæmic conditions. Although I cannot hope to add anything to the value of Dr. DaCosta's paper, possibly some allusion to a series of my own cases may be of interest to others.

The disorder in question has no fixed set of symptoms. The subjective expression of the pathological condition may manifest itself in protean forms. Either the gastric, rheumatic, renal, hepatic, cerebral, or cardiac, or several of them combined, may seem to predominate in any particular case, yet each is dependent in great measure upon certain lithuric conditions, which, being neglected, render any treatment unsatisfactory, if not wholly useless. There is necessarily neither nausea, constipation nor diarrhoea ; headache, insomnia, or palpitations, myalgic pains, or urinary deposits, all in any given case. The subject of it, indeed, is quite likely to express himself as being otherwise in good health and strength, vigor-

ous in mind and body, and yet so tormented at times, and apparently without cause, with one or more of the functional nervous phenomena described, as to induce in him the fear of some fatal organic defect of heart or brain.

Of the varied symptoms none are more distressing than the two which are the more immediate subject of this paper: A constant tinnitus aurium from which there is no escape during the waking hours, and which indeed often interferes with the sleep—buzzing, ringing, clicking or constant pulsation, for which no visible or tangible cause can be discovered either in gastric disorder or the external and internal auditory apparatus—is not only a constant source of annoyance but of serious apprehension to its unfortunate possessor; or still more if, either with or without this tinnitus, the victim finds himself the subject of sudden attacks of vertigo, so severe and decided as to cause a staggering gait, possibly complete prostration, as in an attack of epilepsy, the case assumes a gravity which startles and terrifies its subject into fear of impending death.

In one case a young, active business man, apparently in vigorous health, in addition to some of these symptoms, finds his memory failing to such a degree as to impair business efficiency; he can not recall the prices of his goods, the daily changes in stocks, etc., and fancies that he is threatened with paralysis, brain softening, or some dire evil which is to bring ruin upon him.

Another will have renal complications dependent wholly upon some hepatic derangement of function which sends him from one physician to another in the hope of relief to his fear of Bright's disease, diabetes, or cystic calculus, while still another may be complicated solely with tormenting muscular or arthritic pains. And so on one might recall instances of one more of these with the addition of purely nervous complications, simulating to the fears of the patient almost every conceivable organic disease.

The first of the ensuing cases only is given in some detail, it being a striking instance of the disorder, and one which, with its coincident organic cardiac complication, might well have caused much concern to both physician and patient, but which, when its true nature was appreciated, proved to be susceptible of prompt and effectual relief.

Dr. ——, who had been in active practice for twenty-five years, about 1871 was attacked suddenly, after a moderate lunch, with vertigo so decided as to necessitate the recumbent posture, and cause great alarm to his family. There was no actual syncope, but a distressing sense of faintness, from which, however, he recovered in a few minutes; there was neither nausea, palpitation, nor headache. The attack was at the time attributed to lager beer, not very fresh, taken with the lunch. In early life, while a medical student, he had suffered from a bad attack of endocarditis, entailing mitral disease, during the course of a severe rheumatic fever. Three or four years later he had a second rheumatic seizure, very severe, and lasting, with little intermission, for six weeks, but without any additional cardiac complication. Since these attacks, any unusual exertion has inevitably induced palpitations and dyspnoea, but with the precautions which his professional knowledge indicated, these attacks were infrequent, giving but little trouble and no apprehension. At about the period of the first vertiginous seizure he began to be troubled with tinnitus, but at rare intervals, and coincident with catarrhal attacks, nasal and faucial. For a time this attracted little attention, but subsequently became more frequent and annoying, until, at the end of some years, the tinnitus became almost constant through the day, and at night was frequently so annoying as seriously to interfere with sleep. Consulting his friends specially skilled in aural affections, it was by all agreed that the cause must be attributed to an extension of the catarrhal congestion to the middle ear, with fibroid thickening of the canal, and

that, in view of its long duration, little encouragement could be given for its permanent relief. The verdict was, perforce, accepted, and for years the continued singing was endured, with such philosophy as could be mustered, though occasionally the pulsations would become so aggravated as to be almost unendurable. From 1871 to 1879 occasional attacks of vertigo occurred, but generally late in the evening, and after days of unusual fatigue. These were always temporarily relieved by a dram or two of any mild stimulant. The attacks were at one time thought to be possibly due to his habit of smoking, but no direct relation could ever be traced. In 1879, when leaving the water-closet one morning, a sudden and severe attack occurred, with distressing faintness and prostration, though the pulse was of good strength, and there was no palpitation. Some time elapsed before he was able to leave the floor for a couch, and subsequently to resume his daily work, in the pursuit of which he now, for the first time, noticed that his gait was uncertain. For the ensuing two years there were no more, or only very slight, attacks of vertigo, but the sense of inability to walk straight was more or less manifest, and at times to so great a degree as to make him fear the charge of intoxication. The staggering could only be overcome by stopping, sitting down, or grasping the first tree or fence for a few minutes.

Finally, in October, 1881, when apparently perfectly well, there being neither gastric nor cardiac symptoms, a very sudden and severe attack of vertigo occurred while walking through a hospital ward, and a chair at hand alone prevented his falling. The faintness was relieved by a swallow of brandy, and the visit finished without difficulty.

Matters had now assumed so grave an aspect that he began seriously to study his own case, as he would have been compelled to do in the case of any other patient. First, the condition of the heart was investigated as a possible cause, but competent examination

revealed no increase of the old mitral disease, no evidence of fatty degeneration, the pulse in fullness, frequency, and rhythm normal, neither palpitations nor dyspnoea. No evidence whatever of any organic cerebral disorder. The renal function was apparently perfect; the urine of proper specific gravity, and normal in quantity, although there was a tendency to abnormal acidity. In the absence of any deposit or other symptoms the urine was only roughly tested at any time; unfortunately no accurate analysis was ever made. The digestion was vigorous; the bowels, as always during life, regular, with exceptions noted hereafter. I should now state that since the two rheumatic seizures in early life, above mentioned, he has been subject to frequent attacks of pain and swelling in the small joints of the hands and toes, more especially the former, and also to myalgia in shoulders, loins and hips. These have never been accompanied by fever nor by any severe disturbance of the general health, but always by extreme irritability, nervousness and impatience, with more or less torpor of the bowels. The appetite, even in the worst of these, was always good, too good. These attacks were usually directly traceable to indulgence in certain articles of food or drink, and never found susceptible of mitigation by drugs of any kind until these special things were omitted for a time. Half a bottle of claret or burgundy, for instance, would almost certainly induce redness, swelling and pain in the knuckles, sometimes on a single trial, more often at the end of a few days; strawberries always, and most other fruits if eaten after meridian; malt liquors of any kind if used continuously; while, on the other hand, the moderate long-continued use of brandy, whiskey, thin, dry sherry, or dry champagne agreed perfectly if taken in moderation with dinner.

The sharp gouty pains and enlargement and redness of the smaller joints, in connection with the nervous irritability, suggested of course, the lithic acid diathesis, and careful continued observation proved

a direct connection between the exacerbations and increased tinnitus and vertigo.

A more careful course of diet was at once instituted. The amount of nitrogenous and carbonaceous food was greatly reduced, and all stimulants, and malt liquors, always in daily, but never in excessive, use, were discarded entirely. As medicines, a full dose of citrate of lithia was given before each meal, and an active dose of bitter water on rising each morning, the latter producing one *full* liquid evacuation daily. The effect of this course was very decided. It was continued with hardly an intermission for four months, though on several occasions, when too much animal food or a glass or two of claret, sherry, or madeira were indulged in, the warnings were unmistakable. At the end of this period the the tinnitus was hardly noticeable, the vertigo entirely gone, and the gouty pains a thing of the past. For the past year his health has been more vigorous than ever, but only at the price of constant watchfulness, for any attempt at the indulgences of the table, either at once or with the lapse of two or three days, brings its penalty in arthritic pain, tinnitus, or vertigo, one or all.

The only wines that seem to cause no trouble are a thin table sherry and dry champagne. Better than either is a tablespoonful of brandy with dinner, which seems to be not only harmless but a positive benefit.

I make no apology for giving this case at some length, as I consider it to be a good illustration of a certain class of lithæmic cases, and typical of the nervous and gouty complications, while remarkably free from those renal and gastric symptoms which more generally accompany and obscure the diagnosis; for, as will be noticed, there were none of the ordinary symptoms to call attention to what was undoubtedly the true source of the difficulty, the imperfect assimilation of the *ingesta*. That vertigo and tinnitus, as well as other obscure and intractable complaints, especially those of the skin and mucous membranes, may often be traced to this so-called lith-

uric condition, whether it be designated as lithæmia or suppressed gout, there can be no doubt. I could give from my notes many other cases in which relief from distressing symptoms of long duration, and where the sufferers had become almost hopeless of relief, would be shown, but the narration would serve no other purpose than to lengthen this already tedious paper if given in detail. I will merely allude to a few of them as showing some of the common differences in type.

I. The son of a physician : married ; aged 46 ; a high liver, had for three years been subject to these nervous symptoms. In this case, renal congestion was so marked a feature as to cause apprehension of some organic disease of the kidneys. Under proper treatment, the functions of the liver were restored, the nervous and renal symptoms disappeared, and he regained, and so far as I know is still in comparatively vigorous health.

II. A perfectly temperate man, aged 56, was for two years subject to vertigo. He had also muscular debility, nausea, and some anasarca. Under careful regulation of the diet, free action of the bowels, nitromuriatic acid, etc., the vertigo and muscular weakness disappeared, and his apprehensions with them.

III. A lady of middle age, with some suspicious renal symptoms, headache, nausea, oedema, etc., was under my care at intervals for two years. Early in 1882, though much improved in many respects, the nausea especially having nearly disappeared, she consulted me again for frequent and painful micturition and incessant tinnitus aurium. By the use of lithates, iron and aloes, bitter water, with whiskey and cream and a restricted diet, she obtained relief from all the nervous complications.

IV. A well nourished and apparently vigorous man of 32, in active mercantile life, complained bitterly of seminal emissions and loss of venereal appetite, but chiefly of a constant sense of cerebral confusion, with loss of memory, at times so absolute that

he could not remember the prices of his merchandise or make simple arithmetical calculations. He was married, and of steady habits, excepting that his meals were irregular and hastily eaten. He suffered to a slight degree from haemorrhoids and headache. The emissions proved to be trifling and distinctly prostatic, not seminal. Being an excessive smoker, tobacco was strictly forbidden, and with proper regulation of the quantity and quality of his diet, and the use of saline laxatives and mineral tonics, the unpleasant cerebral phenomena were relieved entirely and permanently, a year having now elapsed without any recurrence.

V. While writing this paper a somewhat similar case occurs to me, not of vertigo, but of most unpleasant cerebral confusion, occasional attacks of distressing tinnitus, with muscular pains, tenderness and swelling of the small joints, and an increased renal secretion, with painful micturition. There has also been on several occasions a decided loss of power in the extensors of the forearm. The patient has been under my charge at intervals for ten years, and has had repeated recoveries from and recurrences of these symptoms, and will probably continue to have them to the end, for being of ample means and extremely indolent habits, the requisite perseverance in treatment is not attainable. It is sufficient to say that the tinnitus and other symptoms in her case always and readily yield to the treatment indicated so long as it is persevered in.

VI. I will allude to but one more. An old gentleman past seventy, has been for many years a notable specimen of the hypochondriac. He has, however, certain difficulties that are not imaginary, especially prostatic enlargement in an aggravated degree. He has for years suffered from tinnitus, slight vertigo, palpitations, and an aggravated catarrh of all the mucus membranes from the alæ nasi to the pylorus. He was under my care a year or two before I could get him under decent control. He was depressed,

skeptical, sure that he was to lose his mind or die suddenly of apoplexy or heart disease, would follow a prescription for a day and then seek another; buy every quack medicine that was recommended (and serve it, fortunately, in the same way) until finally, under the threat that I could or would do no more, a promise of obedience was exacted and tolerably kept, until now, under comparatively simple treatment, life is no longer a burden to him or his friends, the tinnitus and vertigo, the catarrhal troubles and cardiac irregularities being immensely relieved.

The object of this paper is to call attention to those lithaemic cases in which tinnitus and vertigo are prominent symptoms, they being the most alarming and distressing to the patient of the nervous phenomena induced by an excess of lithic acid in the blood.

Many cases of tinnitus, no doubt, are very temporary, such, for instance, as are caused by slight gastric derangement, an excess of ceruminous deposit, local congestions, etc., while other and incurable cases are due to actual organic changes in the auditory apparatus, and the same remark will apply to many cases of vertigo, whether from an acid stomach or actual fatty degeneration of the circulatory apparatus; but, other than these, I can recall many instances occurring in former years, where not suspecting what I now believe to have been the true cause, I was unable to afford that relief which I am now confident would have followed a more accurate diagnosis.

How, in deranged function of the liver, imperfect disintegration and oxidation of the albuminoids results in the excess of lithic acid in the blood, is a physiological problem, for the discussion of which I must refer to Flint, Draper, Bence Jones, Fothergill, Charcot, Murchison, and many others. The opinions of writers and experimenters are as yet quite at variance upon many points. A few remarks only are needed in this connection for the purposes of this paper.

And first, it is not sufficient to say that tinnitus is due to deranged circulation or irregular muscular action, for though both are probably true, what causes those derangements : and so of vertigo. We must go farther back, and find what causes are at work in the blood to influence the vaso-motor and trophic processes. An embolus in the middle cerebral we say results in aphasia, but we mean that aphasia is due to deficient nutrition in the brain cells.

That an excess of nitrogenous and carbonaceous foods, or, there being no excess, a relative deficiency of oxygen, results in imperfect oxidation, seems probable. Were the oxidation complete, instead of insoluble lithic acid we should get soluble urea for normal elimination by the kidneys.

On the other hand, we have the opposite view that an undue prominence has been given to uric acid in these gouty or lithæmic cases ; that the difficulty rests rather with its insolubility than in its excessive production, that it is a consequence rather than a cause, and that the saccharine rather than the nitrogenous elements of the food are the most mischievous.<sup>1</sup> However this may be, the kidneys seem to play an eliminatory role chiefly, although it must be remembered that the necessary excess in activity may lead eventually to chronic congestion and secondary organic changes of structure.

The vaso-motor and trophic influences, the mode of distribution, as well as the nutritive quality of the blood, become also important factors in the production of the cerebral symptoms under discussion. If the blood of the living body should be always alkaline, it is not difficult to see that an abnormal excess of lithic acid would create these vaso-motor or trophic disturbances, one or both, in the circulation and nutrition of the brain and cord, a diminished alkalinity, whether relative or absolute, diminishing the contractility of the heart.

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<sup>1</sup> See Ralte on Morbid Urine pages 65-98.

As to treatment, it is already sufficiently indicated, if we accept the theory of the lithæmic origin of the trouble. That the liver may rest from its overcharged labor, saccharine, nitrogenous, and alcoholic ingesta must be diminished, both sedentary habits on the one hand and excessive fatigue on the other, and over cerebral exhaustion from study or worry avoided, they all tending to weaken the circulation, and so favor acid accumulation.

With regard to the use of tonics, mineral or vegetable, they are often worse than useless, especially in the early stage of average cases, in which, with a careful diet, mild saline laxatives perseveringly used are the best tonics. In anaemic or broken down cases their use may be, of course, a necessity.

In most cases alkaline salts are indispensable, and of these I have found citrate of lithia as useful as any, and perhaps the most agreeable to the stomach, although occasionally it overstimulates the kidney and must be suspended for a time, or replaced by soda or potash, taken an hour after meals, these being in all cases preferable when much flatulence is complained of. Salicylate of lithia I have not yet tried.

Where the pain is myalgiæ, muriate of ammonia in full doses will often give prompt relief, though if not within a day or two, its continuance is useless. I *have found* no benefit from it in arthritic pain or tenderness. Mercurials, podophyllin, colchium, etc., must, I think, be rarely needed, and are objectionable from their depressing effect. Their influence upon the biliary secretion is at least questionable, and if the small intestines are kept free from biliary accumulation by saline or other laxatives, such as ipecac, rhubarb, and soda, they are not required. If there be any one thing which I should lay the most stress upon throughout the treatment it would be the use of aperient bitter waters. Nothing proves so promptly effectual in removing those exacerbations of arthritic tenderness, vertigo, and tinnitus, which the most tractable patient will occasionally bring upon himself by some

indiscretion, as an extra dose of Hunyadi or Pullna water taken for a day or two in the morning fasting. By an extra dose I mean a larger and more active one, for I would have a smaller dose of the same used almost continuously and for months after the cessation of the urgent symptoms. These waters keep the small intestines free, and the sulphates of soda and magnesia with which *they* are highly charged have a cholagogue influence which goes for something. Their influence as combined in these waters is decidedly more satisfactory than when taken alone. The Carlsbad or *Sprudel* salts may also be mentioned in this connection, especially as they have been recently discovered to contain lithia, which the others do not.

The aggravated catarrhal complications may now and then require especial treatment, but in a large proportion of cases the troublesome nasal and faecal congestion will be found to yield with the lithæmia on which it depends.

As to the use of stimulants, most patients are probably better for entire abstinence, but in a certain class such abstinence can be with difficulty enforced. I know of no rule by which one can be guided but the experience of the patient himself. As a rule, of the light wines, the driest are the best. One will drink claret with impunity, while to others it is an undoubted poison, and the same may be said of champagne, burgundy, hock, etc. Climate, and especially hygrometric conditions, become here, I believe, an important factor. It is now a well-known fact that a patient will indulge with impunity in England or on the Continent in beverages both in quantity and in quality which, in our drier climate, cannot be assimilated. The first case reported was a striking instance of this, as was proved by his experience in repeated visits abroad.

In certain cases, stimulants with iron or bark and acids may, as I have said, become a necessity, especially if the alkaline treatment induces any marked im-

poverishment of the blood, for in all cases a lowering treatment is to be avoided. It must not be forgotten that one's living may be generous without being excessive in either food or drinks.

The patient should always be made to understand that the relief which he may receive is to be permanent only so long as the conditions of the cure are complied with; and that any indulgence or excess will almost inevitably be followed by its penalty, and moreover, remembering that too frequent recurrences of merely functional disorder are likely to result eventually in actual organic changes, no longer amenable to curative treatment.

In conclusion, I may be permitted to say that while the pathology of these affections remains, as at present, an open question with different observers, the successful treatment of a series of cases may help materially in its solution. Where medical Science is defective, medical Art may assist in placing it upon a right foundation.





